Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	28-June-2025
Team ID	LTVIP2025TMID33633
Project Name	GrainPalette – A Deep Learning Odyssey in Rice Type Classification Through Transfer Learning
Maximum Marks	4 Marks

Functional Requirements:
Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Image Upload	The system shall allow users to upload a rice grain image for classification.
FR-2	Rice Type Prediction	The system shall process the uploaded image using a trained CNN mo the rice type.
FR-3	Display Prediction Result	The system shall display the predicted rice type along with a confidence score.
FR-4	Sample Image Reference	The system shall provide sample images for each rice type to guide users before uploading.
FR-5	Prediction History	The system shall maintain and display a history of predictions for the

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The system must have a simple and intuitive interface to allow farmers to easily upload images and view results without technical knowledge.
NFR-2	**Security**	Only authorized users (e.g., admin, quality inspectors) can manage the dataset and retrain the model. Sensitive data like prediction logs must be securely handled
NFR-3	**Reliability**	The model should provide consistent and accurate rice type predictions under various input conditions.
NFR-4	**Performance**	Image upload and prediction should complete within 2–3 seconds, even on lower-end devices or rural networks.
NFR-5	**Availability**	The application should be accessible online (via Cloud or local server) with minimal downtime.
NFR-6	**Scalability**	The system should be designed to scale with additional rice types or support integration with other crop classification models.